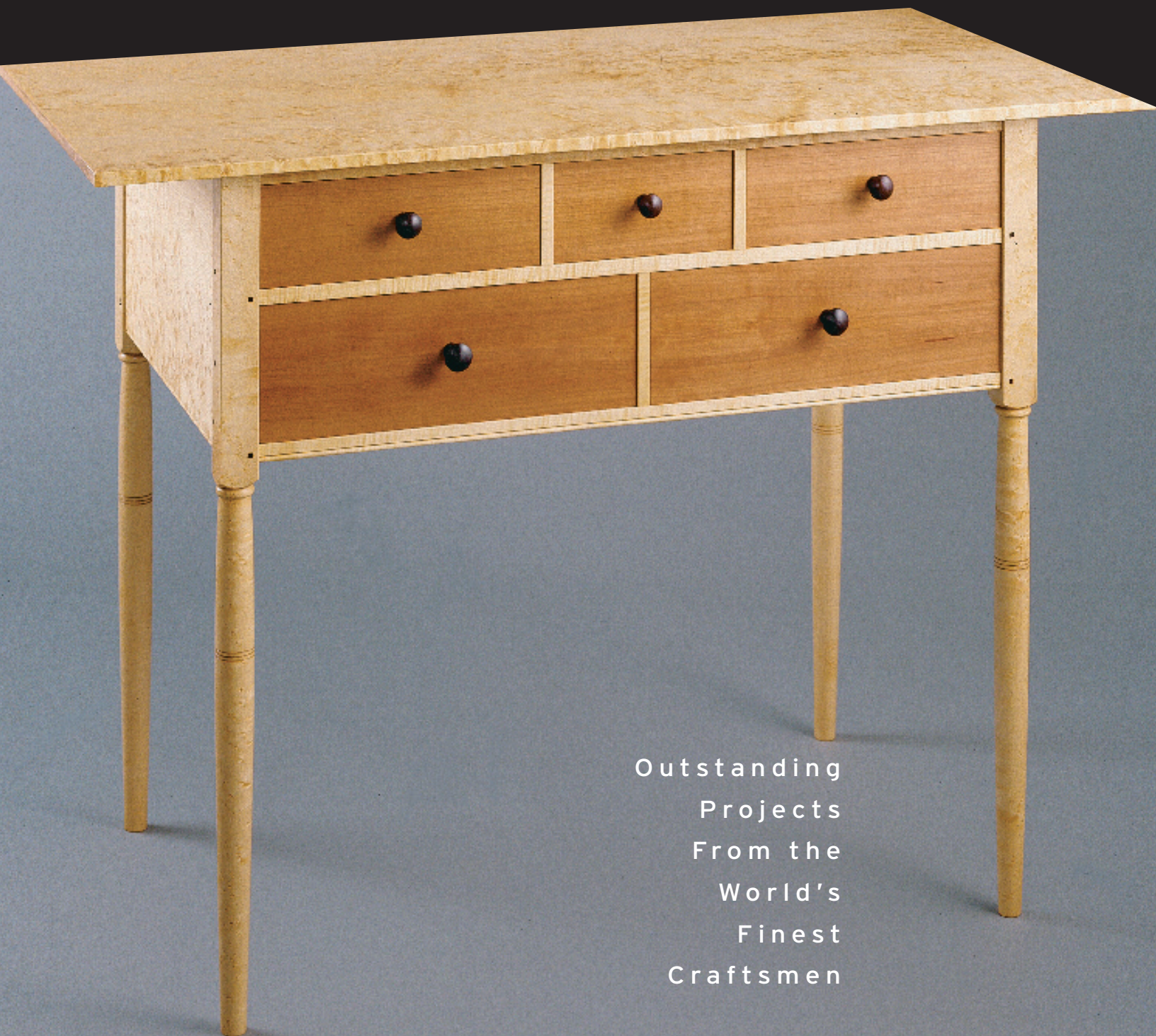




GREAT DESIGNS FROM **FINE WOODWORKING**
FURNITURE



Outstanding
Projects
From the
World's
Finest
Craftsmen



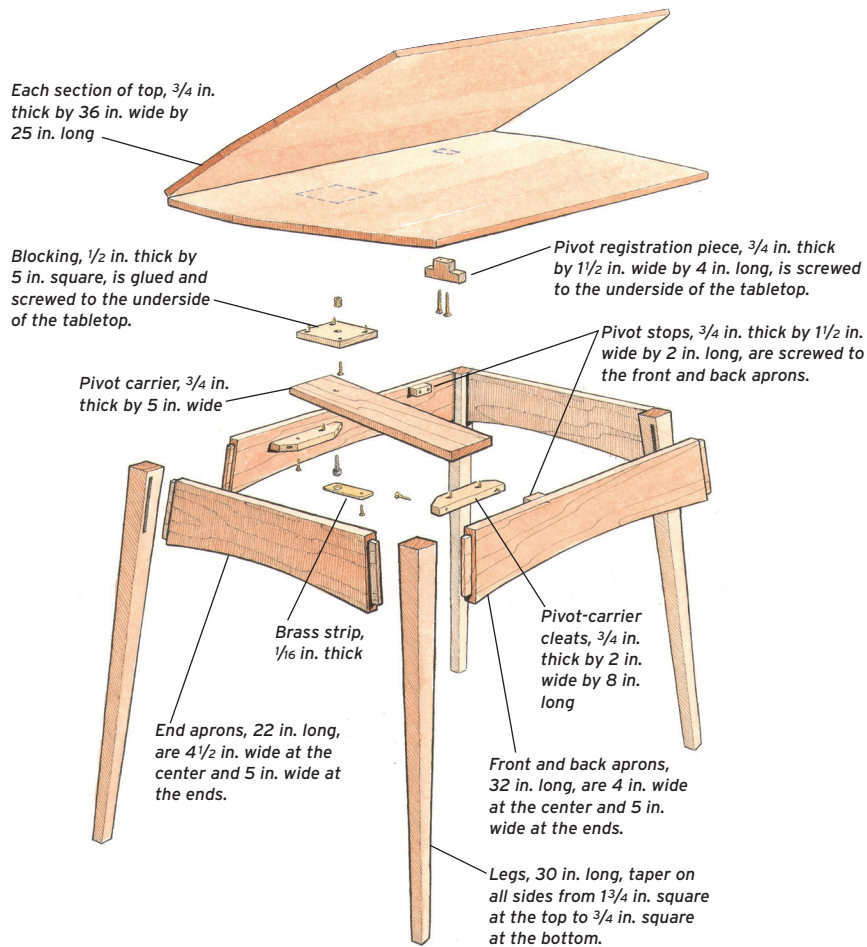
AN EXPANDABLE TABLE

by William Krase



A SIMPLE WAY TO EXPAND A TABLE

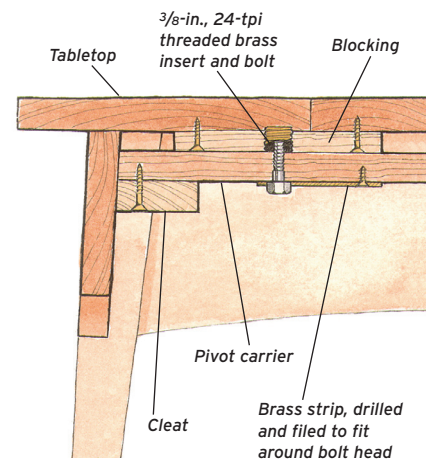
To convert the table from its compact mode, the top is turned 90° on the pivot carrier (see detail below); then the top is opened to full size.



No pivoting beyond this point. The pivot stops fit snug inside the recesses of the T-shaped registration piece.

PIVOT-MECHANISM DETAIL

The tabletop rotates on a single point using a machine bolt screwed into a threaded insert.



I vividly remember the colorful language my mother used when I was a kid as she struggled to extend a removable-leaf table that was prone to jamming. So when a client asked for an expandable table, I sought a better solution. My client wanted a table that would fit against a wall and seat two and that on occasion could expand to seat six. He expected some sort of drop-leaf table, but it's difficult to sit around that kind of table when the leaves are down.

I recalled seeing a table where the top pivoted and then unfolded to double in size, a solution I thought would meet the needs of my client. The design meets several challenges inherent in this type of table. The central problem is that a fixed base must accommodate, with adequate stability, both a small top and one that is twice the size. At the same time, the footprint of the base should not extend beyond the “shadow” of the hinged top in its contracted size, lest the legs of the table conflict with the feet of the user.

The use of SOSS hinges (www.soss.com) permits the leaf to fold over 180 degrees in the closed position. When the table is open, though, the hinges are concealed. Two would have given enough strength, but I elected to use four hinges to help keep the leaves aligned.

The folding method I used is suitable for larger tables with a length-to-width ratio of 1.2 to 1.8, but it is not suitable for square, round, or oval tabletops. I made the open table boat-shaped, a design that affords everyone a better view of each other and that is conducive to conversation. The edge profile must take into account the sometimes-inverted position of one leaf. I used a simple long-radius roundover bit guided by a template.

I chose to splay the legs for extra stability and to taper them all the way to the bottom. The ends of the aprons are all 5 degrees from the vertical with the tenons cut on the tablesaw. Strictly speaking, the



The best way to locate the pivot point is to make an accurate scale drawing of the table frame. Overlay this with a plan of the tabletop in its folded position so that you can see the relationship between the frame and the top, both in its normal position and rotated 90 degrees. Point A is the midpoint of the hinge line with the table folded in the two-seat position, while point B is the midpoint of the hinge line with the tabletop rotated and in the six-seat position. Draw lines from both points at 45 degrees to the line A-B; their intersection marks the pivot point (C). Now, the pivot carrier and the pivot stops can be drawn in.

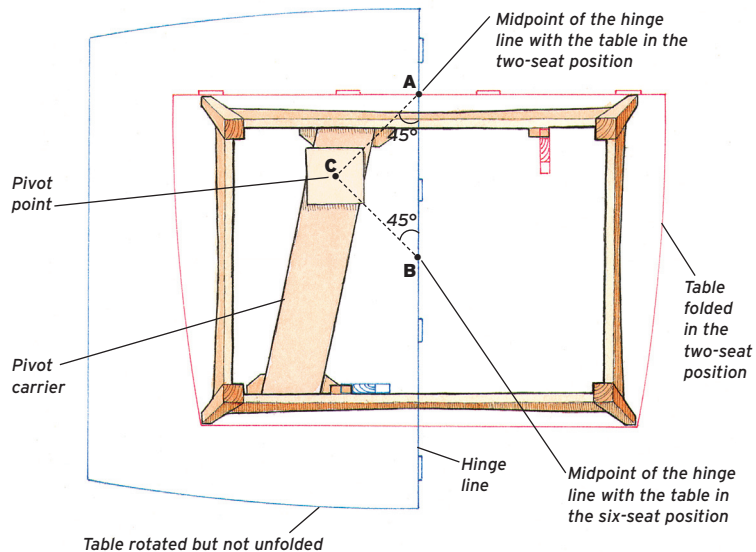
Measurements from the scale drawing can be taken to locate the pivot point on both the pivot carrier and the tabletop.

The pivot is a $\frac{3}{8}$ -in., 24-tpi machine bolt that mates with and turns in a threaded brass insert in the tabletop. The insert is set in a

Locating and Mounting the Pivot

FINDING THE PIVOT POINT

First locate the center of the hinge line in the two-seat (A) and six-seat (B) positions. Then project lines from these points at 45°. The intersection of these lines (C) is the location of the pivot point.



block that's glued and screwed to the underside of the tabletop. The insert requires a nominal $\frac{1}{2}$ -in. pilot hole and is $\frac{5}{8}$ in. long.

Screwing the insert into hardwood is much easier if the nominal pilot hole is enlarged by $\frac{1}{32}$ in. To install the insert perpendicular to the surface, use an auxiliary block of wood to make things easier.

The machine bolt passes through the pivot carrier and into the threaded insert. This type of

pivot should be arranged to tighten a quarter turn when the table is expanded. This will pull the parts together very slightly, so clearance over the pivot carrier should be allowed.

The final step is to add a brass strip to prevent the pivot bolt from loosening or falling out. The strip is drilled and filed to fit over the bolt head and is screwed to the pivot carrier at the other end.

tenons should have been cut at a compound angle due to the splay of the legs, but I didn't do this because the second angle for a 5 degrees splay is a negligible 0.2 degrees. Make a scale drawing to locate the position of the pivot point (above).

Next, the recesses for the hinges need to be cut. Because the deep recesses are awkward to cut on the edge of the large tabletop, I made a 12-in.-tall auxiliary fence for my router table.

After the aprons and legs had been assembled, I attached the pivot carrier, which provides a point on which the tabletop can turn. The pivot carrier is secured to two blocks that are screwed to the aprons.

The carrier is angled to expose the two stops that also are screwed to the aprons and limit the swivel motion. These stops register against a T-shaped piece of wood screwed to the underside of the leaf that doesn't flip over.

All tables of this design have one drawback: They cannot be lifted when the tabletop is open because the only permanent connection with the base is the pivot mechanism.

William Krase is a retired aerospace engineer who lives in Mendocino, California.